

WHAT IS CLAIMED IS:

1. A laminated optical disc manufacturing apparatus comprising:

an adhesive applying device adapted to apply an adhesive to a first substrate, forming an adhesive layer having a specific thickness between the first substrate and a second substrate superimposed onto the first substrate;

an adhesive supply source adapted to supply the adhesive to the adhesive applying device, the adhesive being controlled to have a first predetermined temperature; and

a defoaming tank adapted to remove bubbles from the adhesive at a second predetermined temperature, the second predetermined temperature being higher than the first predetermined temperature.

2. The laminated optical disc manufacturing apparatus according to claim 1, further comprising:

an adhesive recovery tank for recovering adhesive unused in the formation of the adhesive layer; and

a filter adapted to filter the recovered adhesive at a third predetermined temperature higher than the first predetermined temperature;

wherein the defoaming tank is further adapted to remove bubbles from the filtered adhesive.

3. The laminated optical disc manufacturing apparatus according to claim 2, wherein

the second predetermined temperature is equal to the third predetermined temperature.

4. The laminated optical disc manufacturing apparatus according to claim 1, the adhesive comprising a radiation cure resin.

5. The laminated optical disc manufacturing apparatus according to claim 1, the adhesive comprising a thermoplastic resin.

6. The laminated optical disc manufacturing apparatus according to claim 1, further comprising:

a layer thickness measuring device adapted to measure an actual thickness of the adhesive layer between the first substrate and the second substrate;

a layer thickness difference detection device adapted to determine an adhesive layer thickness difference between the measured adhesive layer thickness and a target adhesive layer thickness; and

a control device adapted to control at least the adhesive applying device based on the adhesive layer thickness difference.

7. The laminated optical disc manufacturing apparatus according to claim 1, further comprising:

a spreading device adapted to integrally rotate the superimposed first substrate and second substrate at a predetermined spreading rotational speed;

wherein the adhesive applying device is further adapted to apply the adhesive at a

predetermined application rotational speed onto a predetermined radial position on a first surface of the first substrate, the adhesive forming an annular mound having a top edge of a narrow peak shape in cross section;

wherein the second substrate is superimposed onto the first substrate by contacting the top edge of the annular mound with the second substrate; and

wherein the annular mound is spread from the predetermined radial position toward an outside circumference of the first substrate to form the adhesive layer between the first substrate and the second substrate.

8. The laminated optical disc manufacturing apparatus according to claim 7, further comprising a suction device adapted to suction the annular mound during the spreading operation with a first predetermined suction force, the suction device stopping an edge portion of the adhesive layer in a vicinity of the predetermined radial position.

9. The laminated optical disc manufacturing apparatus according to claim 8, further comprising a provisional bonding device that corrects an offset between a center of the first substrate and a center of the second substrate, partly cures the adhesive layer to partially bond and provisionally fastens the first and the second substrates, and further suctions the adhesive layer with a second predetermined suction force.

10. The laminated optical disc manufacturing apparatus according to claim 9, the provisional bonding device further comprising a centering cylinder insertable within a

common center hole of the superimposed first and second substrates, the centering cylinder comprising at least two contact pins which retractably extend in substantially opposite directions and press against an inside circumferential edge of the center hole to align the superimposed first and second substrates.

11. The laminated optical disc manufacturing apparatus according to claim 10, the provisional bonding device being further adapted to cure the suctioned adhesive layer in proximity to the center hole in the aligned first and second substrates.

12. The laminated optical disc manufacturing apparatus according to claim 9, further comprising a bonding device that completely cures the partly cured adhesive layer and completely bonds the first and the second substrates throughout the adhesive layer.

13. The laminated optical disc manufacturing apparatus according to claim 9, further comprising a warping prevention device that provisionally bonds a partially bonded portion of the first and the second substrates and preventing deformation of the provisionally bonded first and second substrates.

14. A laminated optical disc manufacturing apparatus comprising:
an adhesive applying device adapted to apply an adhesive to a first substrate, forming an adhesive layer between the first substrate and a second substrate superimposed onto the first substrate;
an adhesive supply source adapted to supply the adhesive to the adhesive applying

device, the adhesive being controlled to have a first predetermined temperature;

an adhesive recovery tank for recovering adhesive unused in the formation of the adhesive layer; and

a defoaming tank adapted to remove bubbles from at least one of the adhesive supply source and the adhesive recovery tank at a second predetermined temperature, the second predetermined temperature being higher than the first predetermined temperature.

15. A laminated optical disc manufacturing method comprising:

supplying an adhesive to an adhesive applying device, the adhesive being controlled to have a first predetermined temperature;

defoaming the adhesive by removing bubbles from the adhesive at a second predetermined temperature, the second predetermined temperature being higher than the first predetermined temperature;

applying the defoamed adhesive on a first a first substrate;

forming an adhesive layer having a specific thickness between the first substrate and a second substrate.

16. The laminated optical disc manufacturing method according to claim 15, further comprising:

recovering adhesive unused in the formation of the adhesive layer;

filtering the recovered adhesive at third predetermined temperature higher than the

first predetermined temperature;

defoaming the filtered adhesive by removing bubbles from the filtered adhesive; and
supplying the defoamed adhesive to the adhesive applying device.

17. The laminated optical disc manufacturing method according to claim 15, further comprising:

measuring an actual thickness of the adhesive layer between the first substrate and the second substrate;

detecting an adhesive layer thickness difference between the measured adhesive layer thickness and a target adhesive layer thickness; and

controlling at least the adhesive applying device based on the adhesive layer thickness difference.

18. The laminated optical disc manufacturing method according to claim 16, wherein the first predetermined temperature and the second predetermined temperature are equal.

19. The laminated optical disc manufacturing method according to claim 15, further comprising inserting a centering cylinder within a common center hole of the superimposed first and second substrates, the centering cylinder comprising at least two contact pins which retractably extend in substantially opposite directions; and

pressing the contact pins against an inside circumferential edge of the center hole to align the superimposed first and second substrates.

20. The laminated optical disc manufacturing method according to claim 19, further comprising curing the adhesive layer in proximity to the center hole in the superimposed first and second substrates.